

1 a) obtaining a spectral distribution of reflected light segments from at a representative
2 of a sample species of a population;

3 b) sequentially generating a spectral distribution of additional species of a population;

4 c) comparing said spectral distribution of the additional species with the distribution
5 of said representative and producing an output signal reflecting the results of the step of
6 comparing said distributions.

1 28. (Amended). A low cost apparatus for selectively identifying objects, including
2 fluids and tissue, and their condition, from within a population; said apparatus comprising:

3 a) a sensing device for receiving reflected light from objects of a population, said
4 device including a lens diffraction device for separating the reflected light into a plurality of
5 segments of wavelengths and for directing said segments upon an array for measuring the
6 magnitude of the segments of reflected light to define a spectral distribution;

7 b) a digital identifier connected to said sensing device and having a memory for
8 receiving and storing a spectral distribution of light representing a sample object from said
9 population;

10 c) said digital identifier also having a memory for receiving and storing sequential
11 spectral distributions from various objects of the population;

12 d) said digital identifier having logic circuitry programmed to compare the subsequent
13 spectral distributions with the memorized spectral distribution and to provide an output
14 indicating the results of the comparison of the distributions.

1 41. (New). A low cost spectral device for comparing spectral distributions, said
2 device comprising:

3 a) electronic memory elements for receiving signals reflecting a first spectral
4 distribution of reflected light segments;

5 b) electronic memory elements for receiving signals reflecting an additional spectral
6 distribution of reflected light segments; and

7 c) logic circuitry interconnected with said elements and containing an algorithm for
8 comparing the first spectral distribution of light segments with the additional spectral
9 distribution of reflected light segments.

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1 42. (New). A digital identifier apparatus as recited in claim 41 in which said digital
2 identifier comprises a Digital Signal Processor.

1 43. (New). A digital identifier apparatus as recited in claim 42 in which said
2 algorithm comprises a regression analysis.

1 44. (New). A digital identifier apparatus as recited in claim 41 in which the logic
2 algorithm includes an output indicating the degree of similarity between the two distributions.

1 45. (New). A digital identifier apparatus as recited in claim 41 in which the algorithm
2 indicates the degree of dissimilarity between the two distributions.

1 46. (New). A digital identifier apparatus as recited in claim 41 in which said
2 distributions are reflected from different objects.

1 47. (New). A low cost method for comparing selected objects, said method
2 comprising the steps of:

3 a) generating a spectral distribution of reflected light segments in binary form from a
4 first object;

5 b) sequentially generating a spectral distribution of reflected light segments in binary
6 form of an additional object;

7 c) electronically comparing said spectral distribution of the additional object with the
8 distribution of said first object through an algorithm.

1 48. (New). A method as recited in claim 47 in which said algorithm includes a
2 regression analysis.

1 49. (New). A method as recited in claim 47 in which said light segments in numerical
2 form are generated by directing said light upon a linear array whose output is converted to a
3 digital output for comparison.

1 50. (New). A method as recited in claim 47 in which said light segments are directed
2 upon said array by a lens.

1 51. (New). A low cost sensing device for sensing objects, said device comprising:

2 a) an array for receiving reflected light from objects and for generating a plurality of
3 signals indicating the intensity of the reflected light;

4 b) a comparator connected to said array for receiving signals from said array, said
5 comparator having an algorithm for comparing the signals and for sensing the condition of the
6 objects.

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1 52. (New). A device as recited in claim 51 in which a lens is used to focus the light on
2 said array.

1 53. (New) A device as recited in claim 51 in which a diffraction device diffracts the
2 light upon the array.

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Remarks

This is the second preliminary amendment of the claims of this C-I-P Application. Claims 6,7,25 and 28 are being amended to insure that the claims are construed broadly in accord with the nature of the applicant's invention. In addition, claims 41 through 53 are being added to insure a proper, broad construction of the inventor's low cost method and apparatus for comparing spectral distributions with low cost logic circuitry formed of a chip such as a Digital Signal Processor and without the necessity of computers, large storage drives or pre-developed data bases of spectral distributions.